



MI FluFocus

Influenza Surveillance and Avian Influenza Update

**Bureau of Epidemiology
Bureau of Laboratories**

Michigan Department
of Community Health



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New updates in this issue:

- **Michigan Surveillance:** Activity continues to decrease; MDCH reported “Local” activity for Dec. 6-12.
 - **National Surveillance:** Activity decreases, but 6 of 10 regions are still at or above regional ILI baselines.
 - **International Surveillance:** Activity increases in central, southeastern Europe and in south, east Asia.
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******2009 Influenza A (H1N1) virus Updates******

Please continue to reference the MDCH influenza website at www.michigan.gov/flu for additional 2009 H1N1 information. Local health departments can find guidance documents in the MI-HAN document library. In addition, additional laboratory-specific information is located at the Bureau of Laboratories H1N1 page at http://www.michigan.gov/mdch/0,1607,7-132-2945_5103-213906--,00.html.

International (WHO H1N1 2009 update 78 [edited], December 11): In United States and Canada, active influenza virus transmission persists but overall ILI activity continues to decline for the 5th and 3rd consecutive weeks, respectively. In the US, after 8 weeks of increases, proportional mortality due to pneumonia and influenza (P&I mortality) has begun to decrease but remains elevated above the epidemic threshold; weekly numbers of lab-confirmed hospitalizations and deaths have also recently begun to decline. So far, comparing transmission during the current winter season to transmission during the summer season, there appears to be 2-3 times more hospitalized cases and deaths in the United States and approximately 4-5 times more hospitalized cases and deaths in Canada during the winter season. However, the overall rate of hospitalization and death in the population is similar to that which was observed in temperate countries of the southern hemisphere during their winter. This would indicate that transmission of the virus has been much more widespread and intense during the winter, as predicted, but overall rates of severe illness have not changed compared to southern hemisphere. Similar to seasonal influenza, persons with certain underlying conditions (compared to those without) were at significantly increased risk of hospitalization and death associated with pandemic H1N1 2009 virus infection. During the current winter season in Canada, 52% of hospitalized cases, 60% of cases requiring ICU, and 67% of fatal cases, had a underlying chronic medical illness. Similar to the experience of many countries, the most common underlying conditions among fatal cases in Canada were asthma followed by chronic cardiac disease, immunosuppression, and diabetes.

In Europe, geographically widespread transmission of pandemic influenza virus continued to be observed across the continent. With the exception of France where ILI activity continues to increase, ILI activity has peaked or passed its peak in much of western Europe, including in Belgium, Iceland, Ireland, Netherlands, Spain, Portugal, Italy, and Germany. In northern Europe, intensity remains high, however activity has begun to decline in Norway, Sweden, and Denmark. Increasing activity continues to be observed in parts of central and southeastern Europe, including in Albania, the Czech Republic, Estonia, Greece, Hungary, Latvia, Poland, Romania, Montenegro, Slovenia, and Turkey. Further east, declining rates of ILI or ARI have been observed in Georgia, Bulgaria, and Ukraine. In the Russian Federation, influenza virus circulation remains active, but overall activity may have recently peaked. A high intensity of respiratory diseases activity was reported in Lithuania and Greece, and a moderate impact on the healthcare system was reported in France and in parts of northern and far eastern Europe. 99% of subtyped influenza A viruses in Europe were pandemic H1N1 2009. Of note, detections of RSV in Europe have increased over the past four weeks which may partially account for elevated ILI activity among young children.

In Western and Central Asia, influenza virus transmission remains active. ILI/ARI activity continues to increase in Kazakhstan and Kyrgyzstan, but may have peaked in Afghanistan, Israel, and Oman. Pandemic influenza continues to circulate in Iran, Iraq, Jordan, and in much of the surrounding region.

In East Asia, influenza transmission remains variable. Influenza activity continues to increase in Japan and has recently begun to increase in Hong Kong SAR and Chinese Taipei both of which previously experienced a peak of transmission. Elevated but stable ILI activity has been reported in southern China, but declines in activity continue to be observed in northern China and Mongolia. In South Asia, influenza activity has begun to increase in the north-western parts of India and in Sri Lanka. Small number of seasonal influenza viruses continue to be detected in Asia but in decreasing amounts.

In the tropical region of Central and South America and the Caribbean, influenza transmission remains geographically widespread but overall disease activity has been declining in most areas. In Africa, limited data suggest that pandemic H1N1 2009 virus continues to be detected from all parts of the continent (except South Africa where the winter season has passed). Pandemic H1N1 2009 virus appears to be the predominant influenza virus circulating in northern and eastern Africa.

In the temperate region of the southern hemisphere, sporadic cases of pandemic influenza have been reported in recent weeks but no sustained local transmission has been observed.

The countries and overseas territories/communities that have newly reported their first pandemic (H1N1) 2009 confirmed cases since the last web update (No.77): Democratic Peoples Republic of Korea. The countries and overseas territories/communities that have newly reported their first deaths among pandemic (H1N1) 2009 confirmed cases since the last web update (No 77): Austria, Lithuania, Latvia, and the United Arab Emirates.

Region	Deaths
WHO Regional Office for Africa (AFRO)	109
WHO Regional Office for the Americas (AMRO)	At least 6131
WHO Regional Office for the Eastern Mediterranean (EMRO)	452
WHO Regional Office for Europe (EURO)	At least 1242
WHO Regional Office for South-East Asia (SEARO)	814
WHO Regional Office for the Western Pacific (WPRO)	848
Total	At least 9596

Influenza Surveillance Reports

Michigan Disease Surveillance System: The week ending December 12 saw aggregate flu-like reports similar to last week's levels; while individually reported influenza cases and 2009 novel H1N1 cases decreased from the previous week. Individually reported cases for this week are notably higher than what was seen during the identical week of the previous year, while aggregate reports were at similar levels.

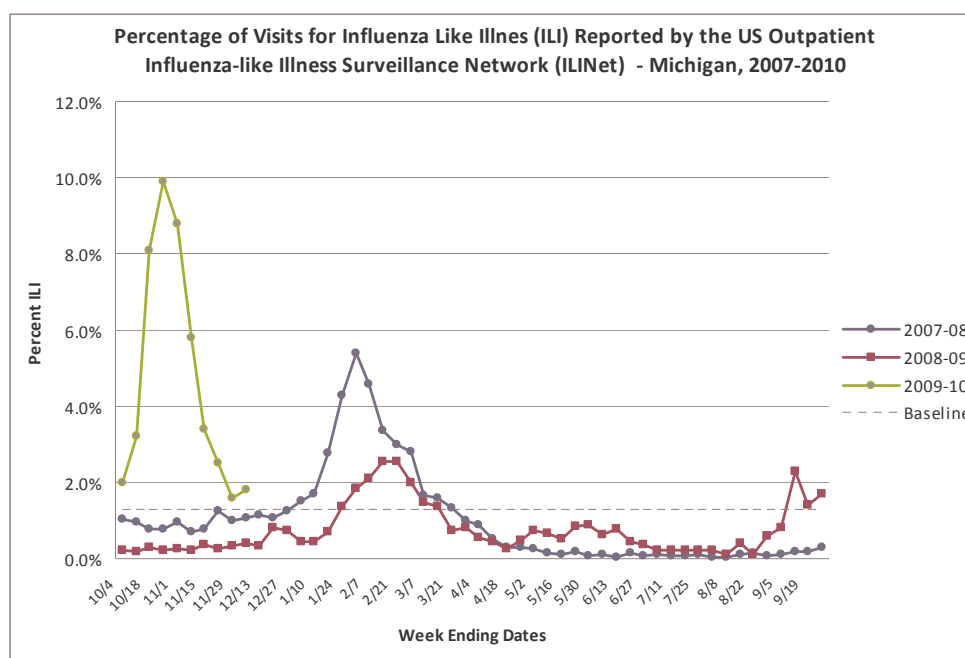
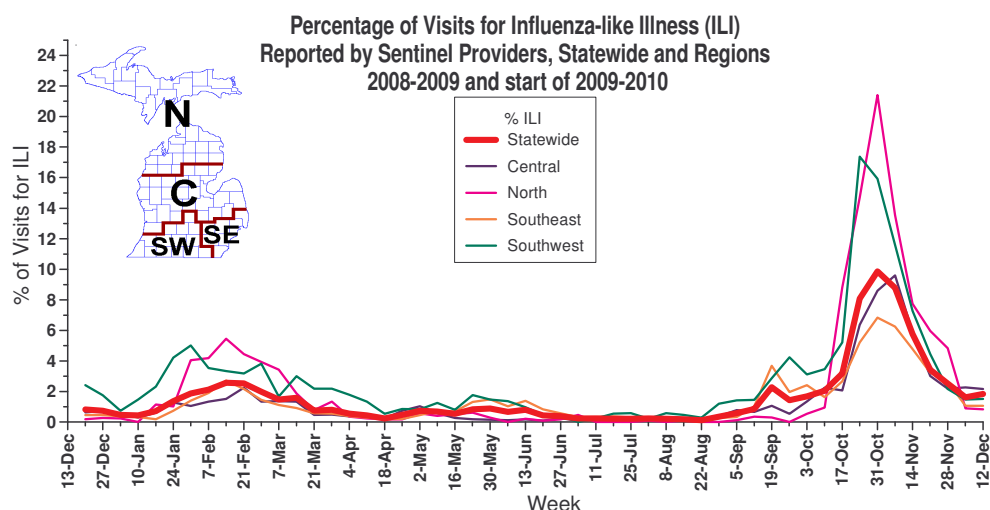
During the week of December 6-12, 2009, 6994 cases of flu-like illness and confirmed and probable cases of seasonal and novel influenza were reported in Michigan. 93 hospitalizations and 4 deaths associated with influenza were reported during this time. This report is updated every Tuesday by 5:00 pm and can be accessed at "Current H1N1 Activity" on this website: <http://www.michigan.gov/h1n1flu>.

Emergency Department Surveillance: Emergency department visits from both constitutional and respiratory complaints were lower than last week's levels. Both constitutional and respiratory complaints are comparable to what was seen this time last year. There were 3 constitutional alerts generated in the N(1), C(1), and SW(1) Influenza Surveillance Regions last week. Zero respiratory alerts were generated in the Influenza Surveillance Regions last week.

Over-the-Counter Product Surveillance: Overall, OTC product sales were mixed. Thermometer sales saw a decrease compared to the previous week, while all other indicators held steady near their previous

week's sales numbers. All sales indicators, with the exception of pediatric electrolytes, which are slightly lower, and thermometers, which are slightly higher, are comparable to levels seen at this time last year.

Sentinel Provider Surveillance (as of December 17, 2009): During the week ending December 12, 2009, the proportion of visits due to influenza-like illness (ILI) increased slightly to 1.8% overall; 151 patient visits due to ILI were reported out of 8,211 office visits. Twenty-nine sentinel sites provided data for this report. Activity stayed the same in two regions: Southeast (1.1%) and Southwest (1.5%); and slightly decreased in the remaining two surveillance regions: Central (2.2%) and North (0.8%). Please note that these rates may change as additional reports are received.



As part of pandemic influenza surveillance, CDC and MDCH highly encourage year-round participation from all sentinel providers. New practices are encouraged to join the sentinel surveillance program today! Contact Cristi Carlton at 517-335-9104 or CarltonC2@michigan.gov for more information.

Laboratory Surveillance (as of December 12): During the week of December 6-12, MDCH Bureau of Laboratories identified 7 novel H1N1 influenza A isolates. For the 2009-2010 season (starting on October 4, 2009), MDCH BOL has identified 590 influenza isolates:

- Novel Influenza A (H1N1): 589
- Influenza B: 1

14 sentinel labs reported for the week ending December 12, 2009. 2 labs reported moderately elevated levels of influenza A positives (SE), 3 labs reported sporadic numbers of flu A positives (SE, C, N), and 9 labs reported no flu A positives (SE, SW, C, N). 1 lab reported sporadic influenza B positives (SE).

Michigan Influenza Antigenic Characterization (as of December 17): One novel H1N1 influenza A virus from Michigan has undergone further characterization at the CDC. This virus was characterized as A/California/07/2009 (H1N1)-like, which is the recommended strain for the H1 component of the 2010 Southern Hemisphere vaccine.

Michigan Influenza Antiviral Resistance Data (as of December 17): Results are currently not available for antiviral resistance at CDC for the 2009-2010 season.

Antiviral resistance testing takes months to complete and cannot be used to guide individual patient treatment. However, CDC has made recommendations regarding the use of antivirals for treatment and prophylaxis of influenza. The guidance is available at <http://www.cdc.gov/H1N1flu/recommendations.htm>.

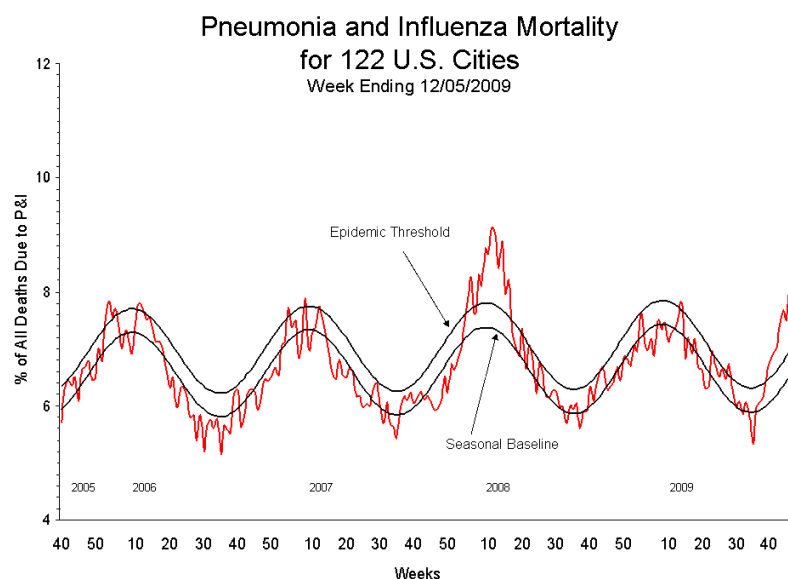
Influenza-Associated Pediatric Mortality (as of December 17): Four influenza-associated pediatric mortalities (SE(2), SW, N) associated with novel H1N1 influenza has been reported to MDCH for the 2009-2010 influenza season.

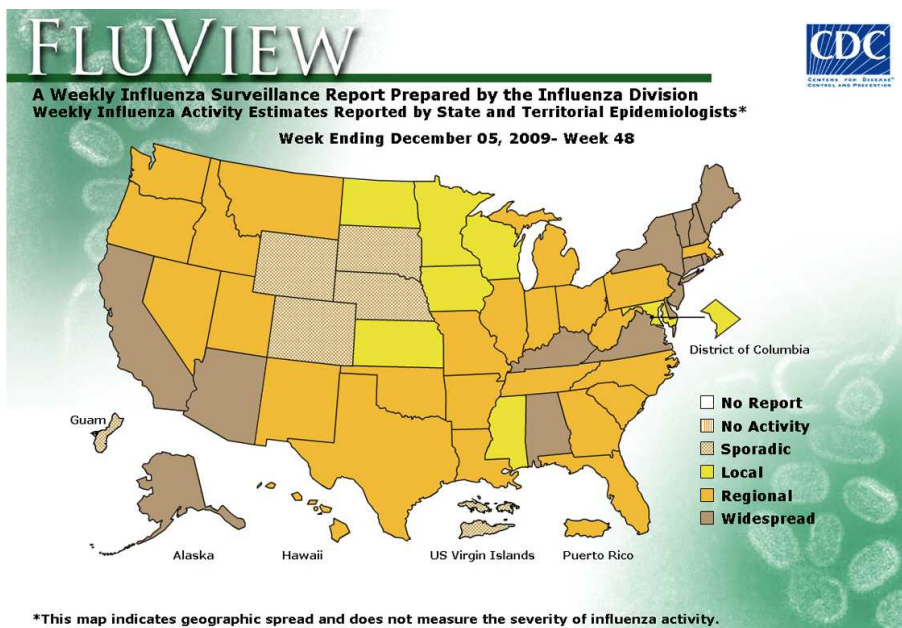
***CDC has asked states for information on any pediatric death associated with influenza. This includes not only any pediatric death (<18 years) resulting from a compatible illness with laboratory confirmation of influenza, but also any unexplained pediatric death with evidence of an infectious process. Please immediately call MDCH to ensure proper specimens are obtained. View the complete MDCH protocol online at http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf.

Influenza Congregate Settings Outbreaks (as of December 17): Seven congregate setting outbreaks with confirmatory novel influenza A H1N1 testing (2SE, 3 SW, 1C, 1N), and two outbreaks associated with positive influenza A tests (1C, 1N) have been reported to MDCH for the 2009-2010 influenza season. These are 8 school facilities and 1 long term care facility.

As of December 14, 2009, 567 influenza-related school and/or district closures in Michigan (Public Health Preparedness Region 1 - 55, Region 2N - 4, Region 2S - 8, Region 3 - 54, Region 5 - 153, Region 6 - 100, Region 7 - 109, Region 8 - 84) have been reported.

National (CDC [edited], December 11): During week 48 (November 29-December 5, 2009), influenza activity continued to decrease in the U.S. 478 (8.9%) specimens tested by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories and reported to CDC/Influenza Division were positive for influenza. Over 99% of all subtyped influenza A viruses being reported to CDC were 2009 influenza A (H1N1) viruses. The proportion of deaths attributed to pneumonia and influenza (P&I) was above the epidemic threshold for the tenth consecutive week. Sixteen influenza-associated pediatric deaths were reported. Thirteen of these deaths were associated with 2009 influenza A (H1N1) virus infection, two were associated with an influenza A virus for which the subtype was undetermined, and one was associated with an influenza B virus infection. The proportion of outpatient visits for influenza-like illness (ILI) was 2.7% which is above the national baseline of 2.3%. Six of the 10 regions reported ILI at or above region-specific baseline levels. Regions 3, 6, 8 and 10 reported ILI below their region specific baselines. Fourteen states reported geographically widespread influenza activity, Puerto Rico and 25 states reported regional influenza activity, the District of Columbia and seven states reported local influenza activity, and the U.S. Virgin Islands, Guam and four states reported sporadic influenza activity.





To access the entire CDC weekly surveillance report, visit <http://www.cdc.gov/flu/weekly/fluactivity.htm>

From <http://www.cdc.gov/h1n1flu/updates/us/#totalcases>:

U.S. Influenza and Pneumonia-Associated Hospitalizations and Deaths from Aug 30 – Dec 5, 2009

Cases Defined by
Influenza Laboratory-Tests**

Hospitalizations
33,490

Deaths
1,445

**States report weekly to CDC either 1) laboratory-confirmed influenza hospitalizations and deaths or 2) pneumonia and influenza syndrome-based cases of hospitalization and death resulting from all types or subtypes of influenza. Although only the laboratory confirmed cases are included in this report, CDC continues to analyze data both from laboratory confirmed and syndromic hospitalizations and deaths.

International (WHO [edited], December 14): [During weeks 46-47,] the level of seasonal influenza activity in most countries was low with only sporadic detections. China reported local outbreaks of H3 as well as sporadic H1 and B activity. Sporadic seasonal influenza activity was observed in Afghanistan (H1,B), Australia (H1,H3,B), Canada (H3,B), China Hong Kong Special Administrative Region (H3,B), Iran (B), Jamaica (H1,H3,B), Kenya (H1,H3,B), Poland (B), Russian Federation (H1,H3,B), Senegal (H3,B), Uganda (B) and United States (H1,B).

MDCH reported **LOCAL INFLUENZA ACTIVITY** to the CDC for the week ending December 12, 2009.

For those interested in additional influenza vaccination and education information, the MDCH *FluBytes* is available at http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-125027--,00.html.

Avian and Novel Influenza Activity

WHO Pandemic Phase: Phase 6 – characterized by increased and sustained transmission in the general population. Human to human transmission of an animal or human-animal influenza reassortant virus has caused sustained community level outbreaks in at least two WHO regions.

National, Human (CIDRAP [edited], December 10): Another month's worth of data on pandemic (H1N1) 2009 influenza virus infection has led federal officials to more than double their estimates of total cases, hospitalizations, and deaths and to assert that the impact on children and younger adults has been far greater than that of a typical flu season. After analyzing data for the weeks from 18 Oct 2009 through 14 Nov 2009, the Centers for Disease Control and Prevention (CDC) estimated that 47 million people, or about 15 percent of the population, have been infected and 9820 have died in the pandemic. That compares with estimates of 22 million cases and 3900 deaths issued 12 Nov 2009 and covering the period from April through 17 Oct 2009. The new estimate of hospitalizations is 213,000, compared with 98,000 a month ago.

"By 14 Nov 2009, many times more children and younger adults, unfortunately, have been hospitalized or killed by [pandemic] H1N1 influenza than happens in a usual flu season," CDC Director Dr Thomas

Frieden said in a news briefing today [10 Dec 2009]. The additional weeks covered in the latest report spanned the peak period for the fall wave of H1N1. In terms of the number of states reporting widespread activity, the last 2 weeks in October marked the crest, with 48 states in that situation. The number dropped to 43 states by the 2nd week in November and has declined further since.

In an online report, the CDC estimated there have been 16 million cases in children up through age 17, leading to 71,000 hospitalizations and 1090 deaths. For adults age 18 through 64, the agency estimated 27 million cases, 121,000 hospitalizations, and 7450 deaths. For elderly people, who are believed to have some protection from the virus because of past flu exposures, the new estimates are 4 million cases, 21,000 hospitalizations, and 1280 deaths.

Less than 5 percent of the increases in total cases, hospitalizations, and deaths are explained by late reporting of events that occurred before 17 Oct 2009, the CDC report says. Frieden commented, "There is some correction for late reporting. But there has been a lot more disease in the month that's reported than in the months before." All the numbers represent the midpoints of ranges of estimates the CDC produced with a new estimation method, which was unveiled on 12 Nov 2009. The numbers of confirmed cases and related hospitalizations and deaths are far lower, because most people infected, including some who get severely sick, are not tested.

When he was asked to compare the H1N1 pandemic with seasonal flu, Frieden said, "We know that it's much milder for older people. It's much less likely to result in death because older people are much less likely to get infected. But it has been a much worse flu season for people under the age of 65, particularly younger adults and children." According to CDC estimates that are often quoted, the nation has about 200,000 flu-related hospitalizations and 36,000 deaths in an average flu season, with about 90 percent of the deaths occurring in elderly people. Frieden noted today that the pandemic estimates are not derived in the same way as these seasonal flu estimates. While the estimation methods are different, seasonal flu is believed to cause fewer than 1000 deaths per year in people younger than 50, he added. He said the CDC doesn't have a specific estimate of H1N1 deaths among adults under age 50, but a "large share" of the adult deaths is in that group. "So it is really many times more severe in terms of severe illness, and hospitalizations are several times higher for children and young adults than in a usual flu season," he said.

The CDC estimates that between 5 percent and 20 percent of the population get seasonal flu in an average year. If 15 percent of people have already been infected with H1N1, the nation, 8 months into the pandemic, is already approaching the upper end of the average attack rate for seasonal flu. However, the estimated death toll so far, 9820, remains well below the estimated seasonal flu toll of 36,000, though children and younger adults make up about 87 percent (8540) of that total, the opposite of what is seen with seasonal flu. Meanwhile, the estimate of 213,000 [pandemic] H1N1 hospitalizations is slightly above the estimate of 200 000 hospital cases for a typical flu season.

In terms of case-fatality rate (CFR), the new CDC estimate of 9820 deaths in 47 million cases translates into an overall rate of about 0.021 percent, or about 210 deaths per million people sickened by the virus. That's just slightly higher than the 0.018 percent CFR indicated by the previous CDC estimate of 3900 deaths among 22 million cases. But the CFRs differ considerably by age group. The CFR for children, with an estimated 1090 deaths in 16 million cases, comes to 0.007 percent, or about 70 deaths in a million cases. The CFR for adults between 18 and 64 comes out much higher, at 0.028 percent, or 280 deaths per million. And the rate for the elderly is higher yet, at 0.032 percent, or 320 deaths in a million cases -- supporting the view that while seniors seem less likely to get sick, they are more likely to die if they do.

Frieden used the new estimates to stress the importance of getting vaccinated against the pandemic virus. If about 15 percent of the population has already been infected, he said, "That still leaves most people not having been infected and still remaining susceptible to H1N1 influenza." He reported that another 12 million doses of vaccine became available in the past week, bringing the cumulative total to about 85 million doses. Many states now have met the vaccine demand from priority groups and have begun offering doses to everyone, he added. The CDC in the past week began offering the vaccine to all employees, in line with state policy in Georgia, Frieden reported. Though cases have been declining recently, vaccination is prudent given the possibility of a 3rd wave of cases this winter, he said. "Flu season lasts until May. And we don't know what the future will bring in terms of H1N1 influenza," he observed.

National, Human (MMWR Weekly 58(48);1341-1344, 2009 [edited], December 11): Indigenous populations from Australia, Canada, and New Zealand have been found to have a 3 to 8 times higher rate

of hospitalization and death associated with infection with the 2009 pandemic influenza A (H1N1) virus (1). In October 2009, 2 U.S. states (Arizona and New Mexico) observed a disproportionate number of deaths related to H1N1 among American Indian/Alaska Natives (AI/ANs). These observations, plus incomplete reporting of race/ethnicity at the national level, led to formation of a multidisciplinary workgroup composed of representatives from 12 state health departments, the Council of State and Territorial Epidemiologists, tribal epidemiology centers, the Indian Health Service, and CDC. The workgroup assessed the burden of H1N1 influenza deaths in the AI/AN population by compiling surveillance data from the states and comparing death rates. The results indicated that, during 15 Apr to 13 Nov 2009, AI/ANs in the 12 participating states had a [pandemic] H1N1 mortality rate 4 times higher than persons in all other racial/ethnic populations combined. Reasons for this disparity in death rates are unknown and need further investigation; however, they might include a high prevalence of chronic health conditions (e.g., diabetes and asthma) among AI/ANs that predisposes them to influenza complications, poverty (e.g., poor living conditions), and delayed access to care. Efforts are needed to increase awareness among AI/ANs and their health-care providers of the potential severity of influenza and current recommendations regarding the timely use of antiviral medications. Efforts to promote the use of 2009 H1N1 influenza monovalent vaccine in AI/AN populations should be expanded.

National, Swine (USDA, December 11): USDA today announced that it has issued a conditional license to Pfizer Animal Health, of Lincoln, Neb., for a pandemic H1N1 influenza vaccine intended to vaccinate pigs against the 2009 pandemic H1N1 influenza virus. This is the first pandemic H1N1 influenza vaccine license issued by USDA.

"USDA and its partners in animal health have worked hard to expedite the development of a vaccine for the 2009 pandemic H1N1 influenza virus," said Cindy Smith, Administrator of the USDA Animal and Plant Health Inspection Service. "This vaccine will help producers protect their swine herds and protect themselves from economic losses in the event that their herds contract this virus."

On June 2, 2009, the Center for Veterinary Biologics informed interested parties that the agency would provide pre-approved Master Seed Viruses to be used for development of a conditionally licensed pandemic H1N1 vaccine to protect swine. In the event that the pandemic H1N1 virus would become an emerging disease in swine, the availability of pre-approved Master Seed Viruses would facilitate a more rapid response should vaccine production be warranted. On September 10, 2009, Secretary Vilsack announced that USDA was expediting development of the H1N1 vaccine to protect swine.

USDA's Animal and Plant Health Inspection Service issues conditional licenses for veterinary biologics products to meet an emergency situation, limited market, local situation or special circumstance. The special circumstance addressed here is the need for a product to vaccinate pigs against the 2009 pandemic H1N1 virus. Under these regulations, a product that is shown to be pure and safe and that demonstrates a reasonable expectation of efficacy may be licensed while data to establish efficacy and potency are still being obtained.

Conditional licenses are generally issued with restrictions and for a limited period of time. In this case, the product has been issued a conditional license for one year. At the end of the conditional license period, data obtained in support of the product's performance will be evaluated to determine if the conditional license should be renewed or if a regular product license may be issued. The product is restricted to use by a veterinarian in those states where use of the product has been approved by the appropriate state regulatory authorities.

International, Human (WHO, December 11): The Ministry of Health has reported a new confirmed case of human infection with the H5N1 avian influenza virus. The case has been confirmed at the National Institute of Hygiene and Epidemiology. The case is a man from Dien Bien Phu city, Dien Bien Province. He developed symptoms on 18 November, was hospitalized at Dien Bien general hospital and died on 28 November 2009. The source of exposure is currently under investigation. His family keeps some chickens and wild geese in their household. Of the 112 cases confirmed to date in Viet Nam, 57 have been fatal.

International, Avian (OIE [edited], December 13): LPAI H7N2, Country: Korea (Rep. of)
Causal Agent: Low pathogenic avian influenza virus Serotype(s) H7N2
Date of first confirmation of the event: 13/12/2009; Date of Start of Event: 26/11/2009
Date of report: 13/12/2009; Date Submitted To OIE: 13/12/2009

Province: CHOLLA-NAMDO; District: Goksung-gun; Sub-district: Sukgok-myun
Species: Birds; Susceptible: 174; Cases: 10; Deaths: 1; Destroyed: 173; Slaughtered: 0

Epidemiological comments: As part of avian influenza surveillance in the Republic of Korea, Livestock Health Control Association collected on 26 November 2009 faecal samples from chickens and ducks in Sukgok traditional market place, a market which is held in every 5 days. The samples were sent then to Seoul National University, which is one of the preliminary testing laboratories for avian influenza. A sample from a duck was proved as positive using haemagglutination test on 8 December. For confirmatory test, the sample was sent to the National Veterinary Research and Quarantine Service on the same day. The NVRQS confirmed using gene sequencing that the virus isolated from duck faeces was low pathogenic avian influenza virus H7N2 subtype. The remaining 173 chickens and ducks retained by the index seller were culled and burned. After this confirmation, the investigation is underway to trace the farmer who supplied chickens or ducks to the index seller and the epidemiologically related farms. Theavian influenza surveillance in the area surrounding the farms will be intensified.

Source of the outbreak(s) or origin of infection: Unknown or inconclusive

Control Measures Applied: Stamping out, Screening, Disinfection of infected premises/establishment(s)

To be applied: Zoning; Animals treated: No

International, Canine and Swine (OIE [edited], December 11): Influenza A/H1N1, China(People's Rep)

Date of first confirmation of the event: 19/11/2009; Date of Start of Event: 28/10/2009

Date of report: 11/12/2009; Date Submitted To OIE: 17/12/2009

Province: HEILONGJIANG; Location: Shuangcheng slaughterhouse

Species: Swine; Susceptible: 60; Cases: 4; Deaths: 0; Destroyed: 0; Slaughtered: 0

Affected Population: Four positive samples were discovered at an abattoir among 60 pigs which were to be slaughtered in Shuangcheng City, Heilongjiang Province, by National Avian Influenza Reference Laboratory in the routine inspection before slaughtering.

Province: BEIJING; Location: Animal Hospital of China Agriculture University

Species: Dogs; Susceptible: 52; Cases: 2; Deaths: 0; Destroyed: 0; Slaughtered: 0

Affected Population: Two H1N1 viruses were discovered among 52 samples which were taken from clinical pets in Animal Hospital of China Agriculture University.

Epidemiological comments: All viruses were found during routine surveillance or inspection according to the guidelines of Ministry of Agriculture and no other A/H1N1 outbreaks were found after surveillance of 25,075 animal samples in total by now.

Source of the outbreak(s) or origin of infection: Unknown or inconclusive

Control Measures: No Control Measures; Animals treated: No; Vaccination Prohibited: No

International, Swine (OIE [edited], December 14): Pandemic Influenza H1N1 2009, Country: Thailand

Date of first confirmation of the event: 14/12/2009; Date of Start of Event: 04/12/2009

Date of report: 14/12/2009; Date Submitted To OIE: 17/12/2009

Province: SARABURI; District: KAENG KHOI; Sub-district: THAP KWANG; Location: Moo.10 village

Species: Swine; Susceptible: 680; Cases: 34; Deaths: 0; Destroyed: 0; Slaughtered: 0

Affected Population: Piglets

Epidemiological comments: Positive cases detected in the framework of the strengthened surveillance.

Source of the outbreak(s): Under investigation by the veterinary and sanitary authorities

Control Measures Applied: Quarantine

To be applied: Screening, Disinfection of infected premises/establishment(s)

Animals treated: No; Vaccination Prohibited: No

Michigan Wild Bird Surveillance (USDA, as of December 17): For the 2009 testing season (April 1, 2009-March 31, 2010), HPAI subtype H5N1 has not been recovered from any of the 111 Michigan samples tested to date, including 58 live wild birds, 39 hunter-killed birds and 14 morbidity/mortality specimens. H5N1 HPAI has not been recovered from 15,743 samples tested nationwide. For more information, visit the National HPAI Early Detection Data System at <http://wildlifedisease.nbii.gov/ai/>.

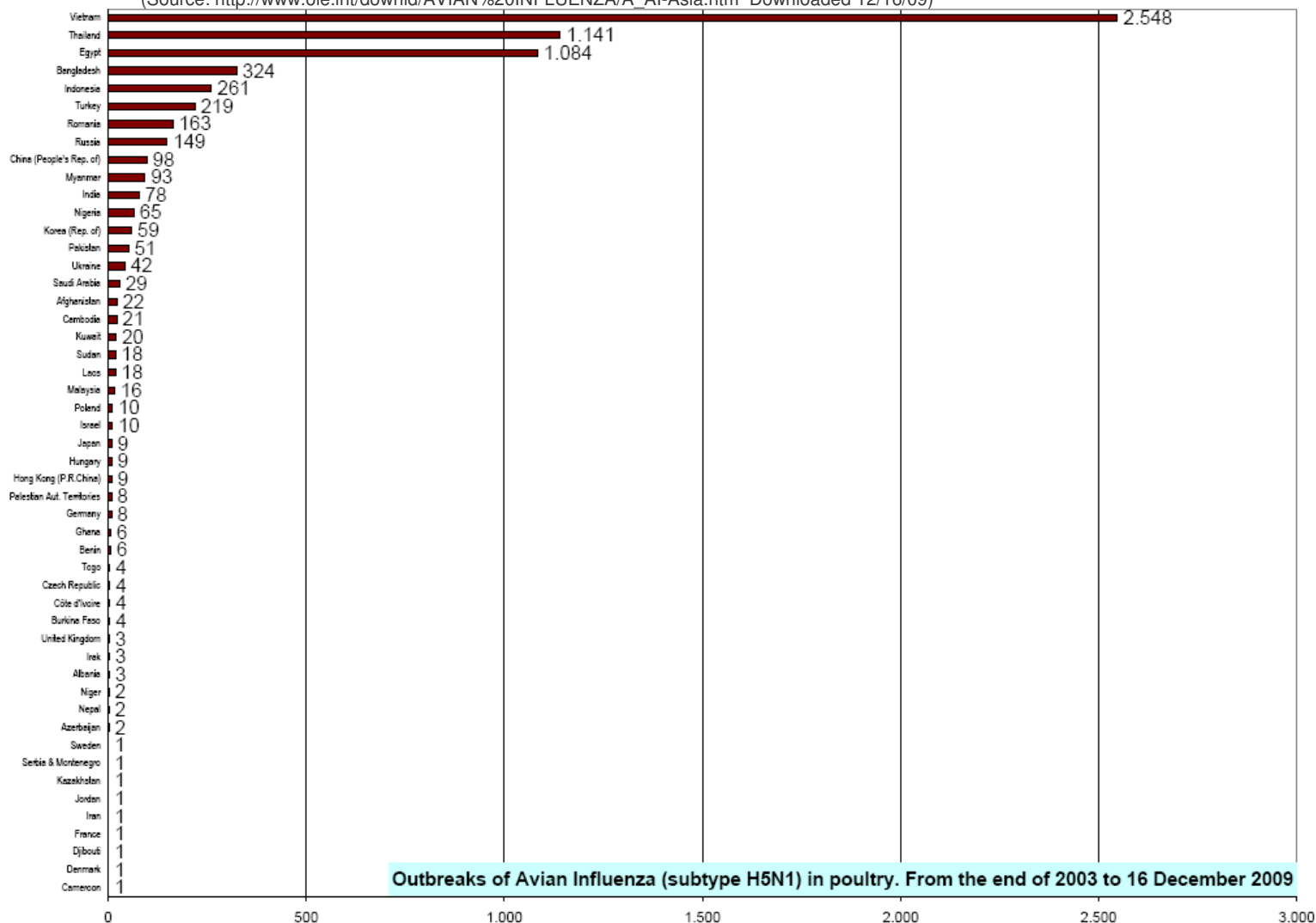
To learn about avian influenza surveillance in Michigan wild birds or to report dead waterfowl, go to Michigan's Emerging Disease website at <http://www.michigan.gov/emergingdiseases>.

Please contact Susan Peters at PetersS1@Michigan.gov with any questions regarding this newsletter or to be added to the weekly electronic mailing list.

Contributors

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Table 1. H5N1 Influenza in Poultry (Outbreaks up to December 16, 2009)(Source: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm Downloaded 12/16/09)**Table 2. H5N1 Influenza in Humans (Cases up to December 11, 2009)**

(http://www.who.int/csr/disease/avian_influenza/country/cases_table_2009_12_11/en/index.html Downloaded 12/14/2009)

Cumulative number of lab-confirmed human cases reported to WHO. Total number of cases includes deaths.

Country	2003		2004		2005		2006		2007		2008		2009		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	0	0	0	0	0	0	8	5	0	0	0	0	0	0	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Cambodia	0	0	0	0	4	4	2	2	1	1	1	0	0	0	8	7
China	1	1	0	0	8	5	13	8	5	3	4	4	7	4	38	25
Djibouti	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	25	9	8	4	38	4	89	27
Indonesia	0	0	0	0	20	13	55	45	42	37	24	20	0	0	141	115
Iraq	0	0	0	0	0	0	3	2	0	0	0	0	0	0	3	2
Lao People's Democratic Republic	0	0	0	0	0	0	0	0	2	2	0	0	0	0	2	2
Myanmar	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1
Pakistan	0	0	0	0	0	0	0	0	3	1	0	0	0	0	3	1
Thailand	0	0	17	12	5	2	3	3	0	0	0	0	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	0	0	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	6	5	5	5	112	57
Total	4	4	46	32	98	43	115	79	88	59	44	33	50	13	445	263